

COVID-19 Delta variant may have increased ability to evade vaccine-induced immunity: study

December 2 2021



The figure incorporates variations to reflect/suggest virus mutations and also included the relevant Greek alphabet letters to emphasise this and contains the background of some of our figures. Credit: Murray Robertson, CC-BY 4.0 (creativecommons.org/licenses/by/4.0/)

Vaccines are effective in decreasing hospitalization and deaths from COVID-19 infection but the emergence of viral variants of concern may diminish their efficacy. A study publishing December 2nd in *PLOS Pathogens* by Emma Thomson, Brian Willett, and colleagues at the MRC-University of Glasgow Centre for Virus Research, United Kingdom and colleagues suggests that COVID-19 Delta variant may be more successful at evading the protective response of vaccines.

Mutations change the shape of the COVID-19 spike protein, preventing antibody recognition and enabling the virus to escape vaccine-induced immunity; however, the extent to which vaccine recipients are immune from the Delta [variant](#) is unknown. To quantify the capacity of different variants (Alpha, Beta and Delta) to evade protective immune response in vaccines, researchers analyzed serum samples collected from healthy people who had received either the Pfizer or Astra Zeneca vaccine. 156 people had received two doses and 50 people had received one dose. They exposed SARS-CoV-2 proteins in a virus model system to sera from vaccinated people and observed the antibody response, measuring how effectively antibodies prevented each variant from infecting cells (virus neutralization).

The researchers found that vaccines conferred protection from all COVID-19 variants but noted reduced antibody neutralization of both the Beta and Delta variants. Across all vaccinated individuals, the Delta variant reduced the immune response in recipients of both the Pfizer and

Astra Zeneca vaccine 4.31 and 5.11-fold respectively. The study was not designed to measure vaccine efficacy directly, although it was in keeping with recent findings from Public Health England of slightly lower vaccine effectiveness against the Delta variant than previous variants. It also did not report on serological study of people who received the Moderna or Johnson & Johnson vaccines.

According to the authors, "While vaccines remain highly effective at preventing severe infection and death, ongoing monitoring of neutralization against new variants alongside studies of vaccine effectiveness are indicated as the virus continues to evolve over time, especially in vulnerable groups. Booster vaccines reduce the chance of being infected with currently circulating new variants. Newer updated [vaccine](#) designs are also likely to be required in time to prevent productive infection with newer variants of the [virus](#)."

More information: Davis C, Logan N, Tyson G, Orton R, Harvey WT, Perkins JS, et al. (2021) Reduced neutralisation of the Delta (B.1.617.2) SARS-CoV-2 variant of concern following vaccination. *PLoS Pathog* 17(12): e1010022. doi.org/10.1371/journal.ppat.1010022

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